

Newclock-80

Thank you for your purchase of the Newclock-80. We hope that you will be pleased with its performance. We sincerely hope that you find the Newclock-80 easy to use. If you have any problem with the instructions or software, we would like to know.

Installation:

1. The battery. The Newclock-80 requires a single lithium battery. Use Eveready #E2032, duracell #DL2032 or Radio Shack #23-162. Install the battery under the clip on the Newclock-80 circuit board. The battery should last 2 to 3 years, depending on the amount of time that your computer is on. (When the computer is on, the battery isn't used.)

2. Connection. Always turn off all the computer before attempting to plug or unplug the Newclock-80. Insert the connector by holding the module by its sides and pushing firmly until the connector is well seated. To unplug, hold the module by its sides and gently wiggle it side-to-side while pulling.

Model I - The Model I version of the Newclock-80 has an integral 40-pin female connector for direct connection to the Model I bus. The body of the module should hang down from the connector, so be sure not to plug it in upside-down.

If you have an Expansion Interface, plug the Newclock-80 into the "Expansion Bus Port". This is the edge connector on the left side panel, in front of the parallel printer port. This card edge may be covered by a plastic flap which should be removed.

If you don't have an Expansion Interface, plug the Newclock-80 into the 40-pin edge connector located on the left rear of the keyboard. This connection may be covered by a plastic flap which should be removed.

Model III and 4 - The Model III/4 version of the Newclock-80 has a 50-pin female connector. It plugs into the 50-pin "I/O Bus" edge connector which is located on the bottom of your Model III/4, towards the rear and centered between the left and right sides. On page 6 of your "Model III Operation Manual," this is shown as connector #5.

Before connecting, orient the Newclock-80 so that the circuit board of the module projects towards the rear of you Model III/4. Plug the module straight up onto the Model III/4 edge connector. A small portion of the module will protrude out from under the rear of your computer.

Model 4P - The Newclock-80 plugs into the "I/O Bus" in the rear of the computer. You need a short extender cable, (not included, C44...\$14.95) as the Newclock-80 must hang downward.

3. Expansion. Your Newclock-80 can remain connected to the TRS-80 at all times as it is fully port decoded and

therefore does not interfere with most other equipment. If you already have other devices attached to the I/O bus, you can check into our Y-cables. They allow you to connect several devices onto the bus.

Technical Information:

You do not need the following information to use your Newclock-80 fully. This information is only for those interested.

The Newclock-80 uses 13 ports to give the time and date. Only the bottom half of each port is used. (The 4 low order bits)

Port assignments are as follows:

NOTE: If you have a "low port" clock, (hard disk systems) subtract 64 from each port number below. Numbers will range from 112 to 124.

Function	Tens digit	Ones Digit	Comment
=====	=====	=====	=====
Year	188	187	
Month	186	185	
Day	184	183	bit 2 is leap bit
Day-of-Week		182	counts 0-6
Hour	181	180	bit 2 is AM/PM bit
			bit 3 is 12/24 bit
Minute	179	178	
Second	177	176	*

* You can't set the seconds directly. Any input to 177 or 176 resets that port to 0.

Examples:

To read Minutes $MN = (INP(179) \text{ AND } 15) * 10 + (INP(178) \text{ AND } 15)$
To read Hours $HR = (INP(181) \text{ AND } 3) * 10 + (INP(180) \text{ AND } 15)$

The leap bit is set (1) if next February gets 29 days.
The AM/PM bit is 1 in the PM.
The 12/24 bit is 1 if in the 24 hour mode.

For more information and examples, see the PORTHELP program.

Tape Users

The Software

The program on the tape is the TIMESET program described below. The first 8 lines of the TIMESET program is the TSTRING routine. If you wish to use the TSTRING routine, (described later) do the following:

1. CLOAD the TIMESET program from the cassette.
2. DO NOT RUN TIMESET! If you did run the program, reload it from cassette. Do not run the program until you have saved it. When the program is run, it modifies itself, and the modified program will not patch TIMES.

3. Delete lines 10-600 (type DELETE 10-600)
4. Add a line 10 of your choice. Examples:
 10 CLOAD"X"
 10 PRINT TIMES
 10 CLS: CLEAR: (and so on with a program)
 10 DELETE 1-10
5. CSAVE the program.

Disk Users

The Software:

Transferring the disk files.

- Model I users with more than one drive:
 Use the BACKUP or COPY commands to move the files from the master disk to another disk
- Model I users with one drive:
 DOSPLUS: Use the COPY1 command
 LDOS: Use COPY with the "X" option
 NEWDOS: Use COPY with the "\$" option or the "CBF" option
 TRSDOS: You have 2 choices:
 1. visit a friend with more than one drive
 2. send your DOS to us, we will put the files on it.
- Model III users with more than one drive:
 TRSDOS: Use the CONVERT utility
 DOSPLUS: Use the CONVERT utility and the COPY command
 LDOS: Use the REPAIR ALIEN and COPY commands.
 NEWDOS: Set the PDRIVE for a model I diskette (TD=A,TC=35,SPT=10). Then use the WRDIRP and COPY commands. A typical sequence might be:
 1. put Newdos in drive 0, the Newclock disk in drive 1
 2. type PDRIVE 0,1,TD=A,TC=35,SPT=10,A <enter>
 3. type WRDIRP 1 <enter>
 4. type COPY 1,0,,NFMT,NDMW,CBF,USR <enter>
 5. type PDRIVE 0,1=0,A
 6. The files are on your Newdos disk.
 7. Your PDRIVE should be back to normal.
- Model III users with only one drive.
 DOSPLUS: use the CONVERT utility and the COPY1 command.
 TRSDOS, LDOS, NEWDOS: you have 3 choices:
 1. visit a friend with more than one drive.
 2. ask a friendly Radio Shack manager if you can use his system for a few minutes.
 3. send your DOS to us, we will put the files on it.
- Model IV
 TRSDOS: use the REPAIR and COPY commands

The Disk Software:

The following programs are on your Newclock-80 disk:

- RUNFIRST/BAS - a menu of the Newclock-80 programs.
- TIMESET - helps you set your Newclock-80.
- TIMESET4 - same as TIMESET, but for Model 4 BASIC.
- TSTRING - low memory routine which patches Model I and

Model III TIMES command to read the Newclock.
 BIGCLOCK - a digital clock/calander with 2" numbers.
 PORTHELP - a tutorial program on the Newclock-80 ports in case you want to read the clock directly.
 SETTIME/CMD - a command file that simply sets the computer's internal clock once.
 HIGHTIME/CMD - a high memory module that constantly updates the internal clock from the Newclock-80.
 NEWDOS80/PT1 - Patch for Model I Newdos80 2.0.
 NEWDOS80/PT3 - Patch for Model III Newdos80 2.0.
 NEWDOS80/RV1 - Patch reverse for Model I Newdos80.
 NEWDOS80/RV3 - Patch reverse for Model III Newdos80.
 LDOS1/FIX - Patches for Model I LDOS 5.1.x.
 LDOS3/FIX - Patches for Model III LDOS 5.1.x.
 LDOS3/CMD - High memory module for Model III LDOS.
 LDOS13/JCL - DO file for LDOS patches.
 CLOCK4/CMD - High memory module for Model 4 TRSDOS 6.
 TRSPAT61/FIX - TRSDOS 6.0 and 6.1 patches.
 TRSPAT62/FIX - TRSDOS 6.2 patches.
 NEWCLK4/JCL - DO file for Model 4 TRSDOS 6 patches.

RUNFIRST/BAS

RUNFIRST/BAS lets you try out many of the programs supplied easily. From BASIC type RUN"RUNFIRST/BAS" and you can select the letter of the program you wish to see.

TIMESSET

TIMESSET is a BASIC program which helps you set your Newclock-80 (for Model I or Model III BASIC). To run the program type RUN"TIMESSET", and you will see the date and time currently in the clock. Hit any key if the date or time is incorrect. Now you are asked if you want to set the date. Type Y, and you are asked:

What is the date?

Type month,day,year. For example 8,1,83

Remember to use commas. TIMESSET will automatically figure the day of week and the leap year bit.

Now you can set the time. You just type hours and minutes, separated by a comma. You cannot set the seconds directly, they will be set to zero when the hours and minutes are set, so you will have to set the time to a future minute if you want to be exact. You will be given a chance to let the time catch up, so you can go ahead.

If you typed a time greater than 13:00, the program will assume that you want the clock in 24 hour format, otherwise you are asked:

Do you want the time in the 12 hour mode? (Y/N)

Type Y if you want a 12 hour clock, N if you want a 24 hour clock.

If you selected a 12 hour clock, you are now asked if it is AM or PM. Type A for AM or P for PM. PM will be assumed if you type anything else. You should see:

Hit any key when it is exactly 10 : 05

(or whatever time you typed) Wait until it is exactly that time, then hit a key. The clock will be set and the new time and date will be shown.

TSTRING

TSTRING is a program which adds the TIMES command to Level II BASIC, or patches Disk BASIC so that the TIMES command reads the Newclock-80 instead of the computer's internal clock. The patch sits in low memory, and must be run each time you enter BASIC. Once run, the program will execute line 10, which can be anything you want. For example, you could make line 10 be RUN"STARTREK" or, if you want, the beginning of your program.

One way of getting the time and date set automatically is to have an "AUTO BASIC TSTRING" (the format varies from DOS to DOS) which will enter BASIC and execute TSTRING. You can change line 10 to RUN"PROGRAM" and your computer can automatically boot up into your BASIC program. Remember, if you leave BASIC and return, TIMES will no longer be patched. You will have to reload it and run it again. Once it has been run, all the line of TSTRING can be deleted.

TSTRING detours the TIMES command and loads the time on the Newclock-80 into the memory addresses of the internal clock. If you use peeks to read the clock, you don't have to change your program much. A dummy statement such as AS=TIMES will load the correct time and date into the memory addresses. This time will remain correct until disk accesses or tape I/O is done. At that time, another dummy AS=TIMES will reread the Newclock-80.

When TSTRING is executed, it removes its line 1. Once this line is removed, the patch to TIMES is not done anymore. Be sure line 1 is in the program before you save it.

BIGCLOCK

BIGCLOCK is a cute program we decided to throw in. It makes a nice screen display when your computer is not otherwise preoccupied. Type RUN"BIGCLOCK" from BASIC to see this truly BIG clock.

PORTHELP

PORTHELP is a tutorial which shows how you can read the time and date directly from the clock using INP statements. To use PORTHELP, type RUN"PORTHELP" from BASIC. If you don't want to use HIGHTIME, the patches or TSTRING, you can use the simple BASIC commands demonstrated and explained in PORTHELP.

SETTIME/CMD

SETTIME/CMD is a command file which reads the

Newclock-80 and sets your computer's internal clock. Type SETTIME from DOS READY to execute this file. Note that the clock is set but not maintained. The clock will lose time during disk accesses. If you need accurate time you can use HIGHTIME.

HIGHTIME/CMD

HIGHTIME/CMD is a command file which loads itself in high memory and protects itself. HIGHTIME maintains the clock constantly, provided the interrupts haven't been stopped. The routine works in BASIC, DOS, or any other environment that doesn't disable the interrupts. To use HIGHTIME/CMD, just type HIGHTIME from DOS READY. Your clock will now be kept accurate.

NEWDOS80 patches

We have obtained patches for NEWDOS80 version 2.0 which make the computer boot up with the correct time and date and maintain it. These patches can be applied be NEWDOS80/PT1 and NEWDOS80/PT3 for the Models I and 3 respectively. To patch your NEWDOS disk, from BASIC type RUN"NEWDOS80/PT1" if you have a Model I or RUN"NEWDOS80/PT3" if you have a Model III. If at some time in the future, you no longer want these patches on the disk, you can use NEWDOS80/RV1 or NEWDOS80/RV2, which remove the patch from your Model I or III respectively.

LDOS patches

LDOS13/JCL is a DO file which applies the Newclock-80 patches to your LDOS 5.1.x. The Model III part has a patch and a high memory module that conforms to LDOS protocol and uses task slot 0. To apply these patches do the following:

If you have a Model I, type DO LDOS13(1) this command file will use the file LDOS1/FIX to patch your disk.

If you have a Model III, type DO LDOS13(3) this command file will use the files LDOS3/FIX and LDOS3/CMD. If you want to remove this task from the system at some time in the future, then you can type the command LDOS3(KILL).

TRSDOS patches

Model III TRSDOS 1.3 users will want to turn off the time and date questions when the computer boots up. To apply the patch, type from DOS READY:

PATCH *0(ADD=4EA9,FIND=CA,CHG=C3)

This patch doesn't load the time and date from the Newclock, it merely eliminates the questions. Use HIGHTIME or SETTIME or TSTRING to actually read the Newclock-80.

Model I TRSDOS 2.3 users: If you have a utility that lets you patch the disk (such as superzap), you can use the following patch.

SYS0/SYS,01,B4 change

0321 4140 11EF 4534 1A96 C077
2C1C 10F7 2C34 2C7E 2D3D 835F 1ABE D07E
FE1E 3006 2D7E 2DE6 03C8 3601 2C34 7ED6
ODD8 3601 2D2D 34

to 0321 4440 01BC 0116 OFCD D745 "BC" is "7C" and
042E 46CD D745 04CD D545 2D01 B503 1603 "B5" is "75" for
ED78 ODA2 160F 0777 0707 8677 ED78 A20D low port clocks
8677 2B10 EBC9 34

If you don't want to patch your system permanently, you can run the short program at the end of TIMESET. Lines 500 and 501 contain the TRSDOS patch (which works with TRSDOS 2.1,2.2,2.3). If you enter BASIC, LOAD TIMESET, and RUN 500, the patch will be done and will remain until the computer is reset.

Model 4 Programs:

If you are using the Model 4 in the Model III mode, you can use all the programs described above. If you are using the Model 4 in the Model 4 mode, then there are a few differences.

RUNFIRST/BAS

RUNFIRST/BAS lets you try out some of the programs and describes others. From BASIC type RUN"RUNFIRST/BAS". You will see a menu of programs. Choose "L" for a menu of Model 4 mode programs.

TIMESET4

TIMESET4 is the same as TIMESET, only for the Model 4. It helps you set the Newclock-80 time and date. From BASIC type RUN"TIMESET4". You will see the time and date currently in the clock. Hit any key if the time or date is incorrect, and you are asked if you want to set the date. Type Y, and the computer will ask for the date. Type the month, day, and year using commas between the numbers. Ex: 8,1,84

If you want to set the time, type Y to the next question. Just type the hours and minutes, as you cannot set the seconds directly. Here too, you must use a comma between the numbers Ex: 10,05

You will now be asked if you want a 12 hour clock, and whether it is AM or PM. answer the questions, and you will be asked to hit any key when the time is correct. When the hour and minute are exact, hit a key and the time and date will be set.

PORTHELP

PORTHELP is the same program for all Models. You can type RUN"PORTHELP" from BASIC to get a tutorial on the

Newclock-80 ports. (You do not need to use this method to read the clock).

TRSDOS patches

You can patch your TRSDOS 6.1 or 6.2 to boot up with the correct time and date. We also include a module that keeps them accurate. To use these routines, there is a DO file on the disk called NEWCLK4/JCL. To patch your disk, from DOS READY type DO NEWCLK4. If you are using TRSDOS 6.2, type DO NEWCLK4(62).

You can only patch a TRSDOS 6.1 disk once! If you patch it a second time, your DOS will not boot up, so use the DO file only once on each disk.

NEWCLK4/JCL uses the following files: TRSPAT61/FIX (TRSDOS 6.1 patches), TRSPAT62/FIX (TRSDOS 6.2 patches) and CLOCK4/CMD

DOSPLUS 4.0 USERS

To use this program with DOSPLUS, you must first turn off the time and date prompts. From DOS READY type: SYSTEM (TIME=N,DATE=N).

CLOCKDP/CMD is a machine language drive that stays in high memory. To use it simply type CLOCKDP from DOS READY. You should only type CLOCKDP after each boot, or you will waste memory.

- In order to get CLOCKDP to load automatically, you could use AUTO CLOCKDP (If you don't have AUTO already).

- You could also put CLOCKDP into a JCL file for example:

```
CLOCK  
CLOCKDP
```

```
DIR
```

```
BASIC RUN"PROGRAM"
```

- You could put CLOCKDP into a configuration file. Load all your drivers, including CLOCKDP, and type SYSTEM FILE/CFG (See the SYSTEM command). Then AUTO FILE/CFG would load all your drivers, including CLOCKDP, at each boot.



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